

US Army Corps  
of Engineers  
Rock Island District

DEFENSE ENVIRONMENTAL RESTORATION PROGRAM  
FOR  
FORMERLY USED DEFENSE SITES  
ORDNANCE AND EXPLOSIVES



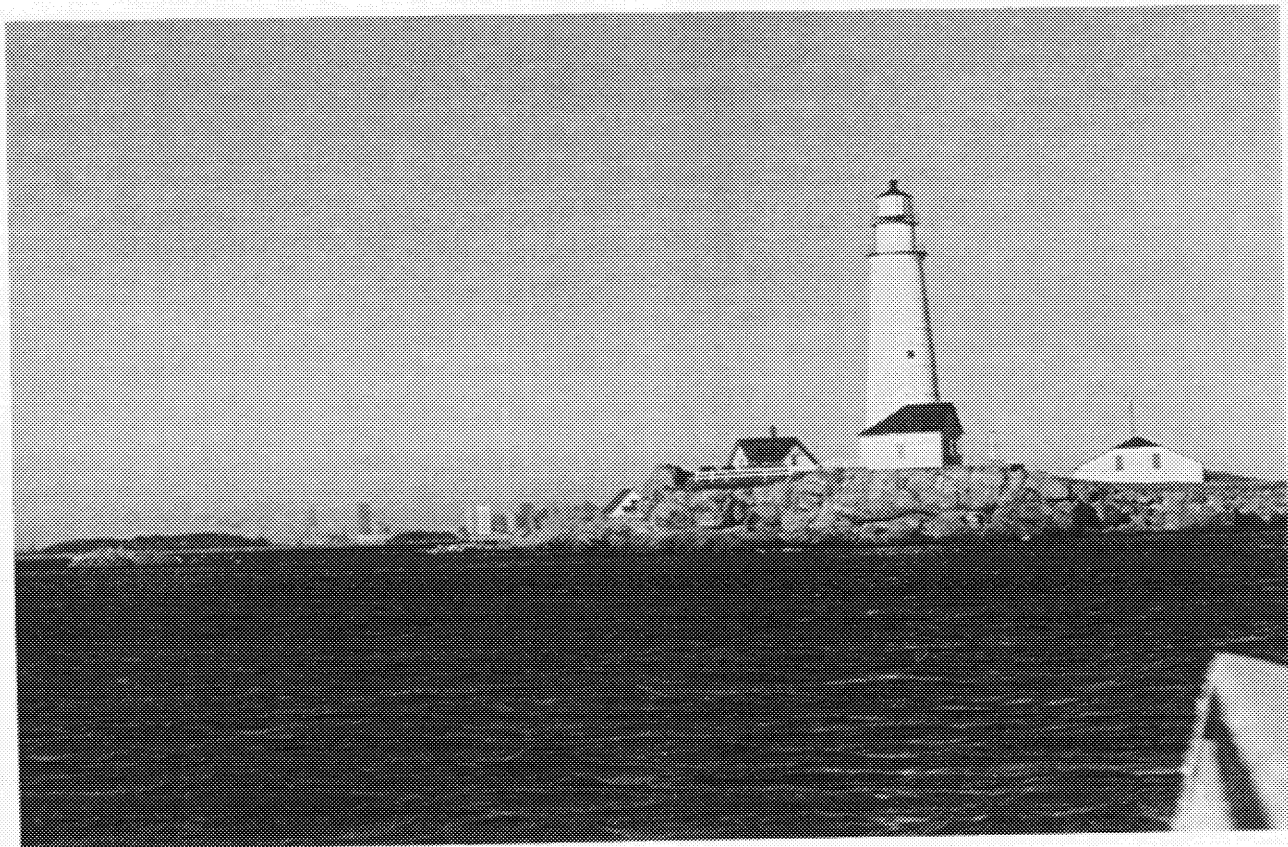
ARCHIVES SEARCH REPORT  
CONCLUSIONS AND RECOMMENDATIONS  
FOR THE FORMER

**GREAT BREWSTER MILITARY  
RESERVATION AMTB 942**

BOSTON, MASSACHUSETTS

PROJECT NUMBER D01MA048102

DECEMBER 1997



**DRAFT**

**DEFENSE ENVIRONMENTAL RESTORATION PROGRAM  
FOR  
FORMERLY USED DEFENSE SITES**

**CONCLUSIONS AND RECOMMENDATIONS**

**ORDNANCE AND EXPLOSIVES  
ARCHIVES SEARCH REPORT  
FOR THE FORMER  
GREAT BREWSTER ISLAND MILITARY RESERVATION AMTB 942  
BOSTON, MA  
PROJECT NUMBER D01MA048102**

December 1997

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ORDNANCE AND EXPLOSIVES  
ARCHIVES SEARCH REPORT  
FOR THE FORMER  
GREAT BREWSTER ISLAND MILITARY RESERVATION AMTB 942  
BOSTON, MA  
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ACKNOWLEDGEMENT				
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ORDNANCE AND EXPLOSIVES  
ARCHIVES SEARCH REPORT  
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**CONCLUSIONS AND RECOMMENDATIONS**

The following conclusions and recommendations are provided by the Archives Search Report Site Inspection (SI) team. These recommendations may not be the actions taken to close out this formerly used defense site.

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**ORDNANCE AND EXPLOSIVE (OE)  
ARCHIVES SEARCH REPORT  
FOR THE FORMER  
GREAT BREWSTER ISLAND MILITARY RESERVATION  
BOSTON, MA  
PROJECT NUMBER D01MA048102**

1. INTRODUCTION

**a. Subject and Purpose**

(1) This report presents the conclusions and recommendations of an historical records search and site inspection for ordnance and explosives (OE) presence located at the former Great Brewster Island Military Reservation, Boston, MA.

(2) The investigation focused on approximately 21.7 acres of land that were formerly used by the War Department/Department of Defense (WD/DOD) from 1849 to 1953 (see plate 1).

(3) The purpose of this investigation was to characterize the site for actual and/or potential ordnance/chemical warfare materiel (CWM) presence, using available historical documentation, personal interviews, and visual evidence. This was achieved through evaluation and analysis of all historical records available, interviews, and the on-site visual inspection results.

**b. Scope**

(1) The conclusions and recommendations presented in this report were drawn from available records, interviews, and the visual site inspection. The conclusions, including risk assessments, were based on documented and reasonably inferred evidence from the investigation. The recommendations made are based on present Defense Environmental Restoration Program/Formerly Used Defense Sites (DERP/FUDS) goals and policies, with implementation subject to approval and appropriate funding actions.

(2) For the purpose of this report, OE presence is considered live ammunition, live ammunition components, chemical warfare materiel (CWM), or explosives which have been lost, abandoned, discarded, buried, fired, or thrown from demolition pits or burning pads. These items were either manufactured, purchased, stored, used, and/or disposed of by the War Department/Department of Defense. Such ammunition/ components are no longer under accountable record control of any DOD organization or activity.

(3) Expended small arms ammunition (.50 caliber or smaller) is not considered OE presence. OE further includes "explosive soil" which refers to any mixture in soil, sands, clays, etc., such that the mixture itself is explosive. Presently, 10 percent or more by weight of secondary explosives in a soil mixture is considered explosive soil.

## **2. CONCLUSIONS**

### **a. Summary of Conclusions**

Table 2-1, on page 4, has been provided to summarize conclusions made on confirmed or potential OE determined to be on the former Great Brewster Island Military Reservation FUDS property. See Plate 3 for project areas.

### **b. Historical Site Summary**

(1) Great Brewster Island Military Reservation FUDS has a long and interesting history. The Brewster Islands were given their name by Miles Standish in 1621 to honor Elder Brewster of the Plymouth Pilgrim Church. The Province of Massachusetts Bay granted Great Brewster Island to the town of Hull in 1641. Several ownership changes through leases, grants and deeds preceded the purchase by the City of Boston in 1848 for \$4,000.

(2) The U.S. Government purchased the island from the city in 1917. At that time America's entry into World War I brought the defense of Boston Harbor to the forefront. Minor defenses were constructed, but later abandoned after the end of the war.



(3) At the outbreak of World War II, there was increased activity and defense construction on Great Brewster Island. The harbor defense command post was established which included the control system for Boston Harbor's mines and nets. This included an observation post, a chemical and bomb proof bunker system, and mine cable huts. A 90mm dual purpose, Anti-Motor Torpedo Boat (AMTB) and anti-aircraft (AA) emplacement was constructed along with a searchlight station for the illumination of the mine fields. A large concrete dual tank reservoir and pumping station was constructed to support the increased military presence.

(4) The Coastal Artillery Corps (CAC) fielded hundreds of artillerymen and logistic support personnel to Great Brewster Island. They conducted drills and training while on 24 hour alert. They conducted a lot of firing practice and were especially cognizant of the German submarines, which were sited during this period. No shots were fired in anger, or during any battle or confrontation from Great Brewster Island Military Reservation.

(5) The Island of Great Brewster was deactivated in 1946 and abandoned. The ownership again reverted to the private sector after it was declared excess to the General Services Administration (GSA) in 1950. It was purchased by Paul D. Kiah in September 1953, who sold it to the Great Brewster Corporation in June 1960, who in turn sold it to Russell Lawry in July 1960. The final purchase was made by the Massachusetts Department of Environmental Management (MADEM) in March 1973. It is currently part of the Boston Harbor Islands State Park operated by the Department of Environmental Management (DEM).

TABLE 2-1  
SUMMARY OF CONCLUSIONS

				FUDS ELIGIBILITY			ORDNANCE PRESENCE				
Area	Former Usage	Present Usage	Probable End Usage	Size Acres*	Confirmed FUDS	Potential FUDS	Not Eligible	Confirmed Ordnance	Potential Ordnance	No ordnance Presence	Risk Assm'nt
A	Great Brewster Island AMTB & Mine Casemate	Boston Harbor Islands State Park	Same	21.7	YES	-	-	-	-	No	5
B	Firing Fan in Boston Harbor	Commercial and Pleasure Navigable Water Way	Same	3,590.0**	-	-	-	-	Yes***	-	
Total Acres				3,611.7							
FDE Acres				21.7							

\* Indicates approximate acreage

\*\*Great Brewster Island Military Reservation firing fan is used to illustrate the scope of the training and firing conducted and in no way should be construed as a part of the FDE, nor intended to become part of the FDE. It is used for clarification purposed only. While DERP eligible it is not eligible for inclusion in the FUDS database in accordance with current guidance.

\*\*\*Although there is always a potential for ordnance presence in this type of situation, no ordnance-other than the 3 inch round presumed to be from Lovells Island-has been reported around this site.

\*\*Great Brewster Island Military Reservation firing fan is used to illustrate the scope of the training and firing conducted and in no way should be construed as a part of the FDE, nor intended to become part of the FDE. It is used for clarification purposed only. While DERP eligible it is not eligible for inclusion in the FUDS database in accordance with current guidance.

\*\*\*Although there is always a potential for ordnance presence in this type of situation, no ordnance-other than the 3 inch round presumed to be from Lovells Island-has been reported around this site.

### **c. Site Eligibility**

Former land usage by the War Department/Department of Defense was previously confirmed for the entire 21.7 acre site as summarized in sections 2.b.(1) through (5) of this report and as described in the Findings and Determination of Eligibility (FDE) issued by the New England District, Corps of Engineers.

### **d. Visual Site Inspection**

(1) The visual site inspection (SI) of the former Great Brewster Island Military Reservation was conducted on 13 November 1997, and was limited to a nonintrusive visual inspection, subsurface sampling was not authorized or performed. The primary task of the SI team was to assess the site for OE presence and/or potential due to prior use by the WD/DOD.

(2) The Great Brewster Island Military Reservation is operated as a state park by DEM. Although open to the public it can only be accessed by boat, and there is no commercial boat transportation to the island. It is approximately eight miles from Boston in Boston Harbor. Transportation to the island was provided by the MADEM, who also served as site escorts.

(3) The SI team conducted a walkover of portions of the 21.7 acre Great Brewster Island Military Reservation. The northern portion of the island is approximately 100 feet high and is a drumlin, the result of glaciation. No OE was observed by the SI team during the visual site inspection.

(4) The mine cable huts on the southern end of the island and the mine observation post on the northern end of the island were removed by the DEM for safety reasons. The 90mm gun blocks are on the northern end at the highest point of the island and are overgrown with brush, predominately Staghorn Sumac. The top of the bluff is narrow with steep sides down to the ocean. Quite a lot of erosion has occurred on the sides of the bluff, especially the western side (the mine observation post foundation was so severely undermined and eroded away that it had to be demolished). The concrete mine casemate and the pumping station/

reservoir are still intact on the island, although vandals have made an effort to destroy them. The SI team found no OE on the walkover. The SI team escort, Mr. Albert Kenney, stated he had never found any OE, or had any OE turned in or reported, other than the one round a woman jogger found approximately 10 years ago on Great Brewster Island Spit. Given the proximity of Lovells Island and Fort Standish, which commanded three 3 Inch Batteries, Wier, Vincent, and Williams, it would explain the 3 Inch round found on the Spit.

#### **e. Confirmed Ordnance Areas**

(1) Confirmation of ordnance presence is based on verifiable historical evidence or direct witness of ordnance items located on site since site closure.

(2) Interviews conducted with local individuals gave no indication or past knowledge of OE presence. There was no evidence of any OE presence, except as stated in 2.e.(1) above, in any area of the site.

#### **f. Potential Ordnance Areas**

(1) Potential ordnance presence is based on a lack of confirmed ordnance. Potential ordnance presence is inferred from records or indirect witness. Inference from historical records would include common practice in production, storage, usage, or disposal, at that time, which could have allowed present day OE presence. Corroboration is needed to verify that an area has potential OE presence on site.

(2) No areas were discovered on site that were considered to have potential ordnance presence.

#### **g. Areas With No Ordnance Presence**

(1) Subsites with no ordnance presence findings are based on a lack of confirmed or potential ordnance evidence.

(2) Great Brewster Island Military Reservation was declared excess and deactivated and abandoned by the CAC and the Army in 1946. No OE items were found on this site. According to DERP/FUDS definition and using the parameters and definitions in 2.g(1) and (2) above, Areas A and B are considered to have **no ordnance presence**.

#### **h. Other Environmental Hazards**

##### **(1) Hazardous Toxicological/Radiological Waste HTRW.**

An amended Inventory Project Report (INPR) was conducted to address the issue of aboveground storage tanks in the entry room of the mine casemate. There are two tanks and asbestos in a small room/alcove to the right upon entering the casemate. A contractor that specializes in tank removal accompanied the SI team to Great Brewster Island to assess what effort would be necessary to remove the tanks.

##### **(2) Building Demolition/Debris Removal (BD/DR).**

There was a request for BD/DR considerations by DEM for the removal of some asbestos near the aboveground storage tanks in the mine casemate and removal of building debris. However, according to the DERP/FUDS determination, BD/DR for Great Brewster Island (to include the building debris and asbestos) does not meet the current policy guidelines for definition of eligibility under the DERP/FUDS.

### **3. RECOMMENDATIONS**

#### **a. Summary of Recommendations**

Table 3-1 on the following page includes an overall summary of the site recommendations. Explanations are included in subsequent paragraphs.

TABLE 3-1 SUMMARY OF RECOMMENDATIONS					

Area	Former Usage	Size* Acres	PA ACTIONS	OE ACTIONS				HTRW ACTIONS	BD/DR ACTIONS
			Prepare INPR	No Further Action	Perform ASR	Implement Interim Response	Perform Limited EE/CA	Perform SI	Perform SI
A	Great Brewster Island AMTB 942 & Mine Casemate	21.7	-	Yes	-	-	-	-	-
B	Firing Fan	3,590.00**	-	Yes	-	-	-	-	-
Total Acreage		3,611.7							
FDE Acreage		21.7							

\*Indicates approximate acreage. \*\*Not included in INPR. It is not current policy to add new acreage to sites if it is offshore beyond 100 yards at mean high tide. It is addressed only for purposes of clarity and given consideration for completeness of this report. While DERP eligible it is not eligible for inclusion in the FUDS database in accordance with current guidance.

**b. Preliminary Assessment Actions**

The Preliminary Assessment of the former Great Brewster Island Military Reservation and the Findings and Determination of Eligibility (FDE) accurately describe the 21.7 acres as used by the WD/DOD. It must be noted that the Great Brewster Island Spit, where the 3 Inch round was found is below mean high tide and is not a part of the Great Brewster Island FDE acreage of 21.7.

**c. Ordnance and Explosive Actions**

No actions are warranted at this time. This site is considered as having no ordnance presence based on all historical documents, site investigation, personal interviews, collected data analyses, and the criteria stated in 1.b.(2) and (3). Therefore, no further action (NOFA) is recommended.

**d. Other Environmental Remediation Actions**

There are no known HTRW issues related to this site, other than those stated and addressed in paragraph 2.h. No other actions are warranted at this time.

**ORDNANCE AND EXPLOSIVES  
ARCHIVES SEARCH REPORT  
FOR THE FORMER  
GREAT BREWSTER ISLAND MILITARY RESERVATION AMTB  
BOSTON, MASSACHUSETTS  
PROJECT NUMBER D01MA048102**

**RISK ASSESSMENT**



Site Name Great Brewster Island  
Site Location Boston, MA  
DERP Project # D01MA048102  
Date Completed 17 April 1997  
Date Revised \_\_\_\_\_

Raters Name C. Lynn Frow  
Phone No. (815) 273-8019  
Organization CENCR-ED-DO SIOAC-ESL  
Area: Entire Site  
RAC Score 5

OE RISK ASSESSMENT:

This risk assessment procedure was developed in accordance with MIL-STD 882C and AR 385-10. The RAC score will be used by CEHNC to prioritize the remedial action at Formerly Used Defense Sites. The OE risk assessment should be based upon best available information resulting from records searches, reports of Explosive Ordnance Disposal (EOD) detachment actions, and field observations, interviews, and measurements. This information is used to assess the risk involved based upon the potential OE hazards identified at the site. The risk assessment is composed of two factors, hazard severity and hazard probability. Personnel involved in visits to potential OE sites should view the CEHNC video tape entitled "A Life Threatening Encounter: OE." Part 1. Hazard Severity. Hazard severity categories are defined to provide a qualitative measure of the worst credible mishap resulting from personnel exposure to various types and quantities of unexploded ordnance items.

TYPES OF ORDNANCE (Circle all values that apply)

A. Conventional Ordnance and Ammunition	VALUE
Medium/Large Caliber (20 mm and larger)	10
Bombs, Explosive	10
Grenades, Hand and Rifle, Explosive	10
Landmines, Explosive	10
Rockets, Guided Missiles, Explosive	10
Detonators, Blasting Caps, Fuzes, Boosters, Bursters	6
Bombs, Practice (w/spotting charges)	6
Grenades, Practice (w/spotting charges)	4
Landmines, Practice (w/spotting charges)	4
Small Arms, Complete round (.22 cal - .50 cal)	1
Small Arms, Expended	0
Conventional Ordnance and Ammunition (Select the largest single value)	0

What evidence do you have regarding conventional OE? Historical records, eye witnesses' accounts, and visual site inspection indicates since site closure, no ammunition items have been encountered or incidents recorded.

B. Pyrotechnics. (For munitions not described above)

	VALUE
Munition (Container) Containing White Phosphorous or other Pyrophoric Material (i.e., Spontaneously Flammable)	10
Munition Containing a Flame or Incendiary Material (i.e., Napalm, Triethylaluminum Metal Incendiaries)	6
Flares, Signals, Simulators, Screening Smoke (other than WP)	4
Pyrotechnics (Select the largest single value)	0

What evidence do you have regarding pyrotechnics? There is no evidence of any pyrotechnics on the site.

C. Bulk High Explosives (Not an integral part of conventional ordnance; uncontainerized.)

	VALUE
Primary or Initiating Explosive (Lead Styphnate, Lead Azide, Nitroglycerin, Mercury Azide, Mercury Fulminate, Tetracene, etc.) Demolition Charges	10
Secondary Explosives (PETN, Composition A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc).	8
Military Dynamite	6
Less Sensitive Explosives (Ammonium Nitrate, Explosive D, etc).	3
High Explosives (Select the largest single value)	0

What evidence do you have regarding bulk explosives? There is no evidence of any type of bulk explosives having been used on the site.

D. Bulk Propellants (Not an integral part of rockets, guided missiles, or other conventional ordnance; uncontainerized)

	VALUE
Solid or Liquid Propellants	6
Propellants	0
Bulk Propellants (Select the largest single value)	0
What evidence do you have regarding propellants? <u>No evidence.</u>	

E. Chemical Warfare Material and Radiological Weapons

	VALUE
Toxic Chemical Agents (Choking, Nerve, Blood, Blister)	25
War Gas Identification Sets	20
Radiological	15
Riot Control and Miscellaneous (Vomiting, Tear)	5
Chemical and Radiological (Select the largest single value)	0

What evidence do you have of chemical/radiological OE? No evidence.

=====

TOTAL HAZARD SEVERITY VALUE

(Sum of Largest Values for A through E--Maximum of 61).  
Apply this value to Table 1 to determine Hazard Severity Category.

TABLE 1

HAZARD SEVERITY*		
Description	Category	Hazard Severity Value
CATASTROPHIC	I	21 and greater
CRITICAL	II	10 to 20
MARGINAL	III	5 to 9
NEGLIGIBLE	IV	1 to 4
**NONE		0

\* Apply Hazard Severity Category to Table 3.

\*\* If Hazard Severity Value is 0, you do not need to complete Part II. Proceed to Part III and use a RAC score of 5 to determine your appropriate action.

Part III. Risk Assessment. The risk assessment value for this site is determined using the following Table 3. Enter with the results of the hazard probability and hazard severity values.

TABLE 3

Probability Level		FREQUENT A	PROBABLE B	OCCASIONAL C	REMOTE D	IMPROBABLE E
Severity Category:						
CATASTROPHIC	I	1	1	2	3	4
CRITICAL	II	1	2	3	4	5
MARGINAL	III	2	3	4	4	5
NEGLIGIBLE	IV	3	4	4	5	5

RISK ASSESSMENT CODE (RAC)

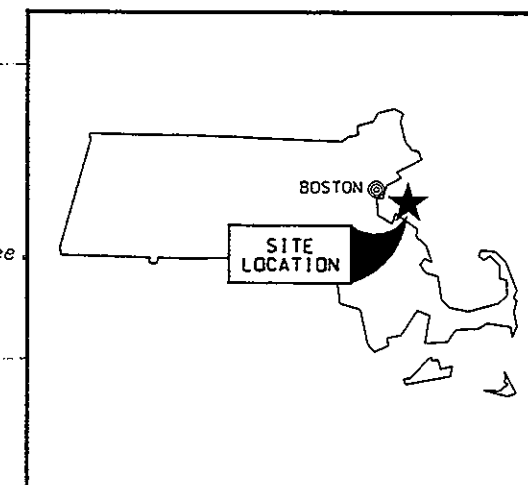
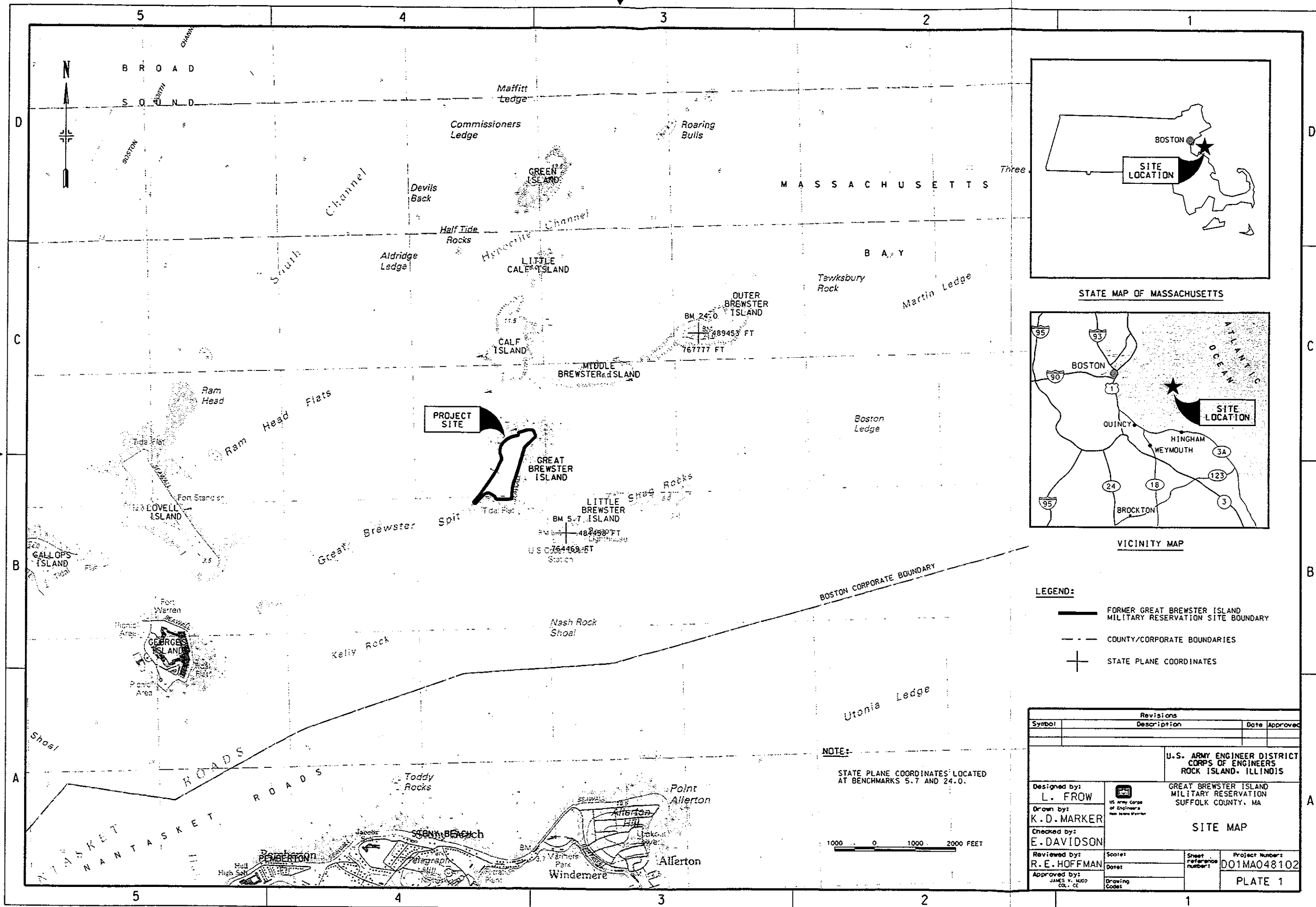
- RAC 1 Expedite INPR, recommending further action by CEHNC - Immediately call CEHNC-OE --commercial 205-895-4968 or DSN 760-4968.
- RAC 2 High priority on completion of INPR - Recommend further action by CEHNC.
- RAC 3 Complete INPR - Recommend further action by CEHNC.
- RAC 4 Complete INPR - Recommend further action by CEHNC.
- RAC 5** Usually indicates that no further action (NOFA) is necessary. Submit NOFA and RAC to CEHNC.

Part IV. Narrative. Summarize the documented evidence that support this risk assessment. If no documented evidence was available, explain all the assumptions that you made.

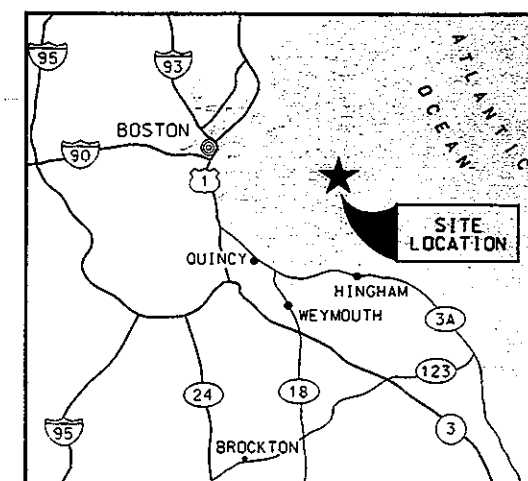
Historical evidence indicates that upon site closure, all armament and equipment was removed from the site. There have been no instances of any OE having been found on Great Brewster Island FUDS. The round found on Great Brewster Island Spit was first thought to be a 90mm round. It was later determined to be a 3 inch round. Great Brewster Island AMTB 942 supported 90mm, 37mm, and .50 caliber guns only. It is likely the round was fired from Fort Standish which had Battery Vincent, four 3" guns, Battery Weir, two 3" guns, and Battery Williams with three 3" guns. Based on interview information and standard training practices at that time, it stands to reason that the round found did not come from Great Brewster Island. It is highly unlikely that any OE remains on this site. There is no indication that any further action is required.

**ORDNANCE AND EXPLOSIVES  
ARCHIVES SEARCH REPORT  
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BOSTON, MASSACHUSETTS  
PROJECT NUMBER D01MA048102**

**PLATES**



STATE MAP OF MASSACHUSETTS



VICINITY MAP

LEGEND:

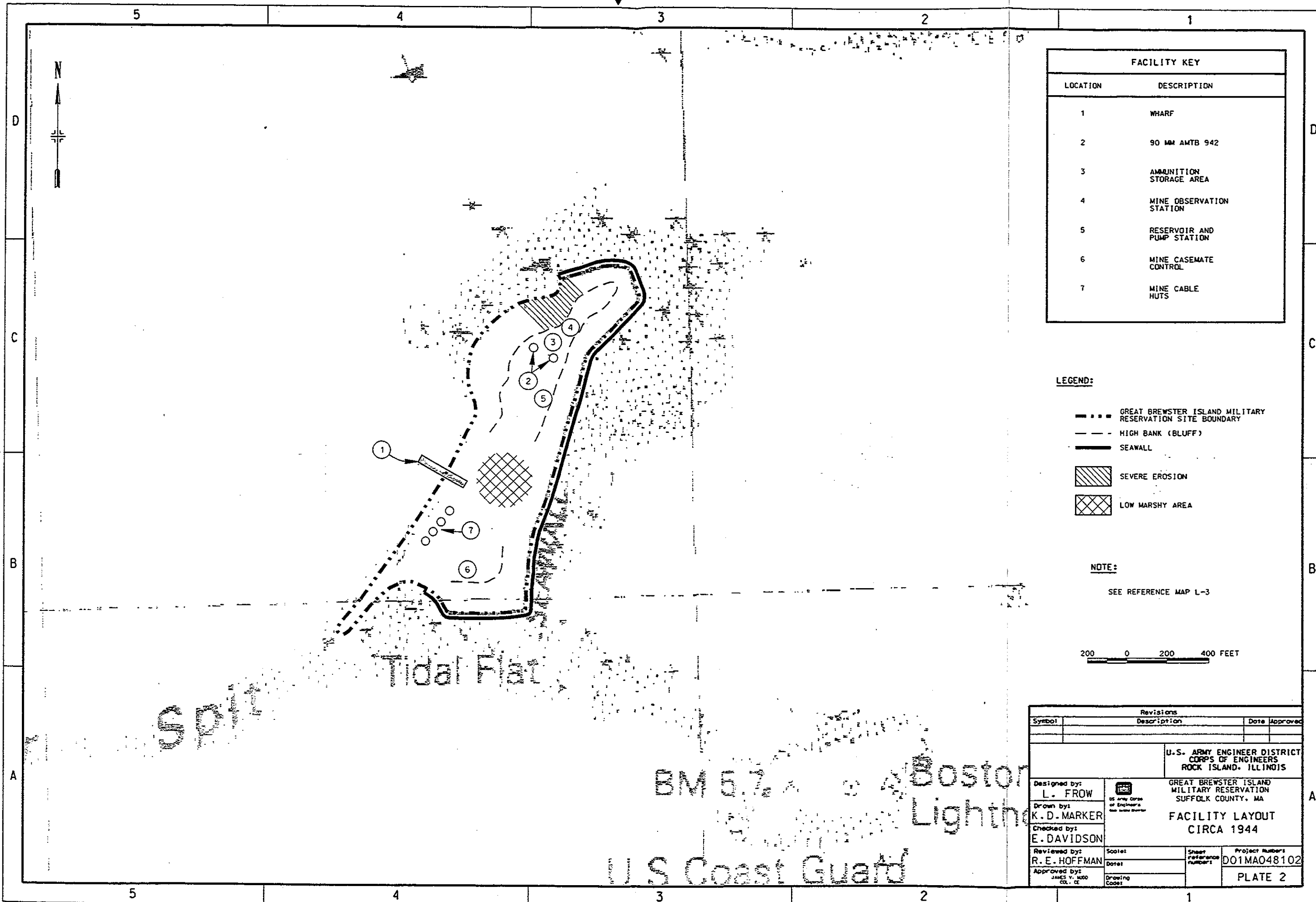
- FORMER GREAT BREWSTER ISLAND MILITARY RESERVATION SITE BOUNDARY
- - - COUNTY/CORPORATE BOUNDARIES
- + STATE PLANE COORDINATES

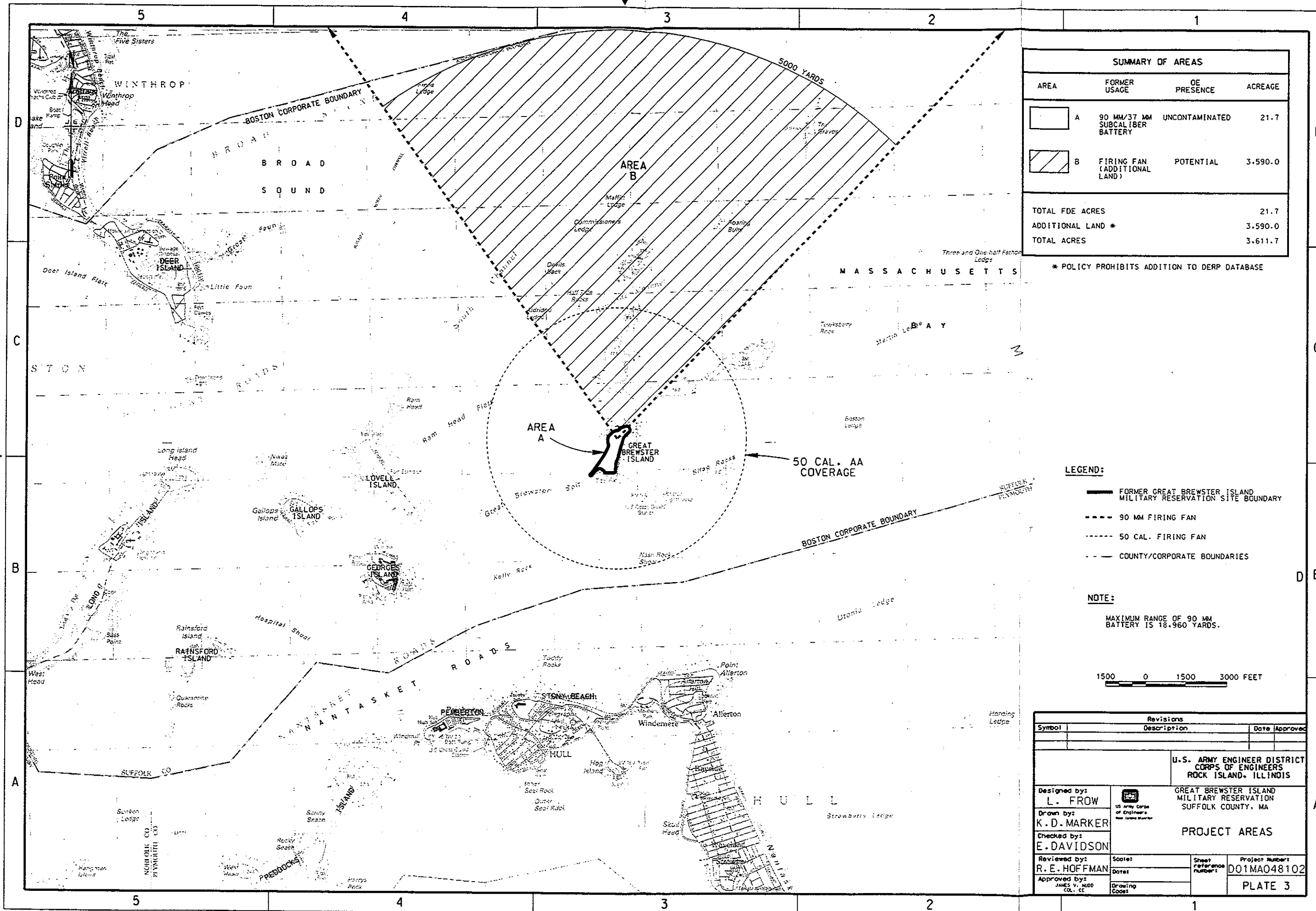
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

STATE PLANE COORDINATES LOCATED AT BENCHMARKS 5.7 AND 24.0.

1000 0 1000 2000 FEET

Revisions		Date		Approved	
Symbol	Description				
<p>U.S. ARMY ENGINEER DISTRICT            CORPS OF ENGINEERS            ROCK ISLAND, ILLINOIS</p> <p>GREAT BREWSTER ISLAND            MILITARY RESERVATION            SUFFOLK COUNTY, MA</p> <p><b>SITE MAP</b></p>					
Designed by: L. FROW		Drawn by: K.D. MARKER		Checked by: E. DAVIDSON	
Reviewed by: R.E. HOFFMAN		Scale:		Sheet reference number:	
Approved by: JAMES V. MUD COL. CE		Date:		Project Number: DO1MA048102	
Drawing Code:				PLATE 1	









SUMMARY OF AREAS			
AREA	FORMER USAGE	OE PRESENCE	ACREAGE
 A	90 MM/37 MM SUBCALIBER BATTERY	UNCONTAMINATED	21.7
 B	FIRING FAN (ADDITIONAL LAND)	POTENTIAL	3,590.0
TOTAL FDE ACRES			21.7
ADDITIONAL LAND *			3,590.0
TOTAL ACRES			3,611.7

\* POLICY PROHIBITS ADDITION TO DERP DATABASE

#### LEGEND:

-  FORMER GREAT BREWSTER ISLAND MILITARY RESERVATION SITE BOUNDARY
-  90 MM FIRING FAN
-  50 CAL. FIRING FAN
-  COUNTY/CORPORATE BOUNDARIES

#### NOTE:

MAXIMUM RANGE OF 90 MM BATTERY IS 18,960 YARDS.

1500 0 1500 3000 FEET

Revisions		Date		Approved	
Symbol	Description				
<p align="center"><b>U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ROCK ISLAND, ILLINOIS</b></p>					
<p>Designed by: <b>L. FROW</b></p>		<p align="center"><b>GREAT BREWSTER ISLAND MILITARY RESERVATION SUFFOLK COUNTY, MA</b></p>			
<p>Drawn by: <b>K.D. MARKER</b></p>		<p align="center"><b>PROJECT AREAS</b></p>			
<p>Checked by: <b>E. DAVIDSON</b></p>		<p>Project Number: <b>D01MA048102</b></p>			
<p>Reviewed by: <b>R.E. HOFFMAN</b></p>		<p>Scale: Date:</p>		<p>Sheet reference number: <b>PLATE 3</b></p>	
<p>Approved by: JAMES V. MUD COL. CE</p>		<p>Drawing Code:</p>			



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